

WHAT IS CLAIMED IS:

1. A medical device comprising:

means for removing particles from a lumen within the body comprising:

an outer, hollow tube having a tube distal end;

a porous braided structure having a distal part and a proximal part;

means, housed within the tube and having a distal end positioned distally of the tube distal end, for moving the braided structure from a contracted condition to an expanded condition by moving at least one of the tube and moving means distal ends towards the other; and

the braided structure comprising means for inhibiting particles from moving completely through the braided structure when in the expanded condition.

2. The device as in claim 1 where said braided structure has a porous proximal side and a porous distal side.

3. The device as in claim 2 wherein said distal side has smaller pores than the proximal side.

4. The device as in claim 3 wherein said braided structure comprises a section of a tubular, porous braided structure having alternating first and second braided sections, said first braided sections, corresponding to said distal side, having pore sizes smaller than the second braided sections, corresponding to said proximal side.

5. The device as in claim 1 further comprising a porous membrane adjacent to the braided structure, the membrane having smaller pores than the braided structure.

6. The device as in claim 5 wherein said porous membrane is an elastic membrane.

7. The device as in claim 1 further comprising a porous membrane in contact with the braided structure, the membrane having smaller pores than the braided structure, whereby the braided structure and the porous membrane therewith are adapted to inhibit particles from moving completely through the braided structure when in the expanded condition.

8. A medical device comprising:

means for removing particles from a lumen within the body comprising:

an outer, hollow tube having a tube distal end;

a porous braided structure having a porous proximal side, a porous distal side, a distal part and a proximal part;

means, housed within the tube and having a distal end positioned distally of the tube distal end, for moving the braided structure from a contracted condition to an expanded condition by moving at least one of the tube and moving means distal ends towards the other;

a porous elastic membrane in contact with the porous distal side of the braided structure, the membrane having smaller pores than the braided structure; and

the braided structure and porous membrane therewith comprising means for inhibiting particles from moving completely through the braided structure when in the expanded condition.

9. A medical device comprising:

means for removing particles from a lumen within the body comprising::

an outer, hollow tube having a tube distal end;

a porous braided structure having a distal part and a proximal part;

means, housed within the tube and having a distal end positioned distally of the tube distal end, for moving the braided structure from a contracted condition to an expanded condition by moving at least one of the tube and moving means distal ends towards the other;

the braided structure being a temperature-sensitive shape memory material so that the braided structure is also movable from a contracted condition to an expanded condition by heating the temperature-sensitive braided material; and

the braided structure comprising means for inhibiting particles from moving completely through the braided structure when in the expanded condition.

10. A medical device comprising:

means for removing particles from a lumen within the body comprising:

an outer, hollow tube having a tube distal end;

a porous braided structure having a porous proximal side, a porous distal side, a distal part and a proximal part;

means, housed within the tube and having a distal end positioned distally of the tube distal end, for moving the braided structure from a contracted condition to an expanded condition by moving at least one of the tube and moving means distal ends towards the other;

the braided structure being a temperature-sensitive shape memory material so that the braided structure is also movable from a contracted condition to an expanded condition by heating the temperature-sensitive braided material;

a porous elastic membrane in contact with the porous distal side of the braided structure, the membrane having smaller pores than the braided structure; and

the braided structure and porous membrane therewith adapted to inhibit particles from moving completely through the braided structure when in the expanded condition.

11. A method for removing particulates from a body lumen comprising:  
placing a filter device at a chosen position within a body lumen;  
fully occluding the body lumen at the chosen position by expanding a braided structure at  
the chosen position;

5 removing particulates from a portion of the body lumen on one side of the chosen position  
by introducing liquid into and removing liquid from said portion;  
collapsing the braided structure; and  
removing the filter device from the body lumen.

12. The method according to claim 11 wherein the placing step is a percutaneous placing  
10 step.

13. The method according to claim 11 wherein the expanding step is carried out using a  
braided structure mounted to first and second the elongate members.

14. The method according to claim 11 wherein the expanding step is carried out using a fully  
sealed braided structure.

15. The method according to claim 11 wherein the expanding step is carried out using a  
partially sealed braided structure.

16. The method according to claim 11 wherein the expanding step is carried out using a  
porous braided structure.

17. The method according to claim 11 wherein the removing step is carried out so that the  
portion is proximal of the braided structure.

18. A method for forming an occlusion system within a lumen of a body to trap particles  
comprising the following steps:

positioning the distal portion of a medical device at a target site within a lumen of a body,  
the medical device comprising:

25 an outer, hollow tube having a tube distal end;  
an inner member housed within the tube and having an inner member distal end  
positioned distally of the tube distal end; and  
a braided structure having a distal part secured to the inner member distal end and a  
proximal part secured to the tube distal end;

30 moving the braided structure from a contracted condition to an expanded condition by  
moving the tube and inner member distal ends toward one another thereby at least substantially

obstructing the lumen at the target site, the braided structure adapted to inhibit particles from moving completely through the braided structure when in the expanded condition.

19. A vascular prosthesis comprising:

a braided body;

5       said braided body having a variable porosity to allow for a variable obstruction to flow through the braided body according to the location along the braided body.

20. The prosthesis of claim 19 wherein the body is a balloon-expandable body.

21. The prosthesis of claim 19 wherein the body is a self-expanding body.

22. The prosthesis of claim 19 wherein the body is a self-expanding body and is also  
10       expandable to a desired size by an inflatable balloon.

23. The prosthesis of claim 19 wherein the material used to make the body is selected from the group consisting of tantalum, shape memory nickel-titanium alloy, wool, nylon, polyethylene, polyester, stainless steel alloy, titanium and PTFE.

24. The prosthesis of claim 19 wherein the body is coated with a textile fabric.

25. The prosthesis of claim 19 further comprising a drug associated with the body.

26. The prosthesis of claim 19 wherein said body comprises temporary energy dispersal means for helping prevent restenosis.